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**Department of Energy**
Richland Field Office
P.O. Box 550
Richland, Washington 99352

93-RPB-022

NOV 30 1992

Mr. Paul T. Day
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U.S. Environmental Protection Agency
Region 10
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Richland, Washington 99352

Mr. David B. Jansen, P.E.
Hanford Project Manager
State of Washington
Department of Ecology
Post Office Box 47600
Olympia, Washington 98504-7600

9312934015

Dear Messrs. Day and Jansen:

REVIEW OF THE SECOND CYCLE OF NOTICE OF DEFICIENCY COMMENTS AND RESPONSES FOR THE 105-DR LARGE SODIUM FIRE FACILITY CLOSURE PLAN, REVISION 0

The second cycle of the Notice of Deficiency (NOD) response table for the 105-DR Large Sodium Fire Facility Closure Plan, Revision 0 is submitted by the U.S. Department of Energy, Richland Field Office (RL) and Westinghouse Hanford Company (WHC) for approval by the State of Washington Department of Ecology (Ecology).

Most of the initial comments have been resolved; the enclosed table lists only those comments and responses to which some questions are still unsettled. Both RL and Ecology have agreed that actions associated with certain portions of the facility will be deferred to final reactor decontamination and decommissioning. Thus, Revision 1 will be a closure/postclosure plan and will contain a description of the stabilization and monitoring activities necessary for postclosure care.

Copies of the document will be distributed to representatives of your respective organizations as follows:

Mr. D. L. Duncan, U.S. Environmental Protection Agency (2 copies)

Mr. S. E. McKinney, Ecology, Lacey (4 copies)

Mr. D. C. Nylander, Ecology, Kennewick (1 copy)

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Should you have any questions regarding this transmittal, please contact Mr. R. N. Krekel, RL, on (509) 376-4264 or Ms. S. M. Price, WHC, on (509) 376-1653.

Sincerely,

James D. Bauer

James D. Bauer, Acting Program Manager
Office of Environmental Assurance,
Permits, and Policy
DOE Richland Field Office

R E Lerch

R. E. Lerch, Manager
Remediation and Restoration
Westinghouse Hanford Company

Enclosure

cc:
D. Duncan, EPA w/encl.
G. Jackson, WHC w/o encl.
R. Lerch, WHC w/encl.
S. McKinney, Ecology w/encl.
T. Michelena, Ecology w/o encl.
D. Nylander, Ecology w/encl.
F. Ruck III, WHC w/o encl.

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**DON'T SAY IT** --- *Write It!*

DATE: February 10, 1992

TO: Distribution

FROM: F. A. Ruck, III FAR III

Telephone: 376-9876

CC: FAR:File/LB H4-57

SUBJECT: Incoming letter(s)

This letter was lost in the BIG move from 450 Hills to 740 Stevens and just now issued. Sorry for any inconvenience.

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DSI

# DRAFT

The following comments from the original Notice of Deficiency have been resolved:

3 4 5 6 7 8 9 10 11 12 14 15 26 28 29 30 31 32 33 34
36 37 40 49 52 53 54 55 56 59 60 64 66 67 70 71 74 76
77 78 79 80 83 84 86 89 90.

1. Comment - The 105-DR Large Sodium Fire Facility Closure Plan should follow the recommendations made in the letter from T. Nord of Ecology, to R. D. Izatt, USDOE, and R. E. Lerch, WHC, dated May 2, 1990. In this letter Ecology provides guidance on standardized outlines for Closure/Postclosure plans. In particular item #3 should be addressed. Also, in accordance with the Tri-Party Agreement, page 5-3 of the Action Plan, treatment, storage, and/or disposal units undergoing closure will do so in accordance with final facility standards as outlined in WAC 173-303-610. In order to fulfill this requirement a variety of items must be included in the closure plan. Refer to the cover letter for examples.

   This plan also mentions that parts of the Large Sodium Fire Facility may be left for the Reactor Decommissioning and Decontamination activities. However the Records of Decision has not been made for this action, and it is not clear whether the Large Sodium Fire Facility was included in the Environmental Impact Statements for these activities. It must be specifically stated how the Fire Facility is addressed in to the EIS, and what the Record of Decision is for the reactor decommissioning activities.

   **RL/WHC Response: Additional detail will be provided where needed. Closure standards developed by the Nuclear and Mixed Waste Management Program will be addressed when this policy is released. The responses to the suggestions in Ecology's letter of May 2, 1990, are as follows.**

   1. **Line numbering was used in this Revision 0 and will continue to be used.**

   2. **The Part A permit application will be moved from the introduction to a separate section.**

   3. **A brief description of each chapter and appendix will be included in the introduction, similar to Part B permit applications.**

   4. **A bar graph was included in Revision 0 and will continue to be used in the closure plan.**

   5. **This information will be included in a postclosure plan if one is required for this facility; however, this information is not required for a closure plan.**

   6. **Official notifications are provided in separate sections in Revision 0. Certification of Closure is a closure activity**

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(Chapter 7.0) and is in Section 7.8. The Notice In Deed is part of the Postclosure (Chapter 8.0) and is in Section 8.1.

**The Draft Environmental Impact Statement addressing the decommissioning of eight surplus reactors (DOE/EIS-0119D) does not specifically mention the Large Sodium Fire Facility (LSFF). However, all decommissioning activities will have to deal with dangerous wastes, and the portion of the 105-DR reactor shared with the LSFF is no exception.**

> **Ecology reply**: The inclusion in future versions of this closure plan of the required elements is acceptable, pending Ecology review of revision 1 of the closure plan. If any closure activities are to be deferred to the decommissioning process there must be specific measures taken to ensure the cleanup of dangerous wastes at the LSFF. RL/WHC must decide whether to include these dangerous wastes in the EIS, or to create a stand-alone document that will coordinate these two remediation activities. At any rate, closure standards must be met during the remediation process.

2. Page 1-1, line 25 - Comment- The reference to the WAC date should reflect the most recent changes to the dangerous waste regulations which were revised April of 1991.

Requirement- Revise the text to state that the most recent edition of the WAC 173-303 requirements will be followed.

**RL/WHC Response: The most recent edition of WAC 173-303, 1991, will be referenced throughout the closure plan and in Chapter 9.**

> **Ecology reply**: This problem of referencing the latest version of documents can be resolved by adding the words "as amended" to those documents that undergo frequent change. This precludes having to constantly update the document references. Make this change to the revised closure plan as necessary.
>
> **RL/WHC Response #2: The suggested changes will be made.**

13. Page 3-1, line 36 - Comment - Development tests using cesium and zinc are mentioned but there is no plan for sampling for these constituents to determine the residual amounts left in the LSFF. In accordance with the Tri-Party Agreement (TPA), any radioactive components may be left behind for inclusion in the reactor decommissioning and decontamination activities for the 105-DR reactor. This possibility will be clarified by the issuance of the aforementioned clean-up policy.

Requirement - All possible constituents must be sampled for and remediated during closure activities. Also, the addition of zinc to the

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waste mixture formula may change the equivalent concentration for this waste stream thus possibly changing it's designation status.

**RL/WHC Response: There was some cesium/zinc testing, but very little zinc was involved and none of it was radioactive. These constituents, if any, will be determined in the sampling and analysis portion of the clean-up and will of course be considered in the designation process.**

> Ecology reply: Explain in greater detail in this section how zinc and cesium will be sampled for during the closure process at the LSFF.
>
> **RL/WHC Response #2: Cesium will be added to the list of target analytes. Zinc and cesium will be sampled and analyzed along with the other target analyte list constituents.**

16. Page 3-2, line 49 - Comment - If it is not possible to discriminate between the lead that may have been deposited due to treatment of lithium-lead and the lead content of the paint, it will be necessary to remove all lead contamination from the walls.

Requirement - The sampling plan must include a Toxic Characteristic Leaching Procedure (TCLP) analysis for the ventilation tunnels as well as any other areas where lead contamination from the burning of lithium-lead may have occurred. The TCLP must analyze for metals, but not for organics or inorganics.

**RL/WHC Response: This passage refers to samples obtained in the exhaust tunnel, which will not be considered in the revised closure plan. Please see the cover letter and response to Comment #17.**

> Ecology reply: Ecology will accept closure deferral for portions of the LSFF until reactor decontamination and decommissioning (D&D) activities provided there are appropriate controls placed over the waste remaining after initial decontamination activities, and a postclosure plan is submitted for the final closure activities 180 days prior to the commencement of reactor decommissioning activities. See the requirements under comment number 17.
>
> **RL/WHC Response #2: Please see response to comment number 17.**

17. Page 3-3, line 30 - Comment - The radioactivity in the upper tunnel was not measured due to inaccessibility. Are there physical barriers that prevent sampling for dangerous waste constituents associated with the LSFF? If there are then how will the upper tunnel be either characterized or verified for clean closure of the LSFF.

Requirement - The upper exhaust tunnel must be sampled to determine whether clean closure has been achieved. The upper tunnel must also be analyzed using the TCLP outlined in comment number 16. The closure plan

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should address whether or not it is physically possible to sample the upper exhaust tunnel and whether or not it can be included in the clean closure of the LSFF, considering whatever barriers to performing decontamination activities are there.

**RL/WHC Response: Please refer to the cover letter to this document, which outlines proposed changes to this closure plan. Specifically, it is proposed that cleaning the exhaust tunnels be left for reactor decommissioning activities. Part of the rationale for this change is owing to the difficulties and hazards associated with cleaning and sampling the tunnels, especially the upper exhaust tunnel area. Access to most of the tunnel area is restricted, and would be accomplished more expediently and safely during demolition of the 105-DR reactor building.**

> Ecology reply: The deferral of areas 2, 4, and 5 is accepted by Ecology. This closure plan must be modified to reflect the postclosure requirements that will be applied to the waste remaining in place. This postclosure plan must address how the waste in these areas will be handled during the reactor decommissioning activities. Specifically, prior to approval of this closure/postclosure plan, the postclosure plan must state how access to these areas will be controlled, what controls will be used to prevent run-on and run-off, and what monitoring activities will be performed during the postclosure period, as well as other elements pursuant to WAC 173-303-610(8). At least 180 days prior to the commencement of D&D activities at the 105-DR Reactor building, RL/WHC must submit the plan for coordinating the D&D activities with the closure of the remaining areas of the LSFF. These final closure activities at the LSFF must comply with WAC 173-303-610 and the Nuclear and Mixed Waste Management Program's interim policy Soil Cleanup/Remediation for Hanford (SCR).
>
> **RL/WHC Response #2: The title of the document will be changed to *105-DR Large Sodium Fire Facility Closure/Postclosure Plan*. The revised document will discuss how the tunnels will be sealed, how incursion of flora, fauna, and the elements will be controlled, and the monitoring activities that will be performed. A plan detailing coordination of LSFF closure with reactor D&D will be submitted 180 days prior to commencement of D&D activities.**

18. Page 4-1 - Comment - This entire section on waste characteristics is lacking in detail and content.

Requirement - Expand this section to include a more complete discussion of all the waste products produced and their chemical properties per WAC 173-303-610. Include all constituents present, their form and their concentrations.

**RL/WHC Response: The following will be inserted into the text:**

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**"At least 95% of all the waste materials are residues of sodium, which is now sodium carbonate (see Appendix B for a partial analysis of wastes). Of the less than 5% of the wastes that are not sodium carbonate, approximately 4% are other alkali metal carbonates, which include lithium carbonate, residual lithium nitride, and cesium carbonate. Approximately 1% or less are sodium and lithium silicates, and miscellaneous materials described elsewhere in this chapter."**

Ecology reply: The inclusion of the text in this section is accepted. For designation purposes this waste must be sampled and analyzed as a mixture pursuant to WAC 173-303-084. The inclusion of lithium, cesium, and zinc may change the designation status of the waste stream.

**RL/WHC Response #2: The text will be included. All regulations will be adhered to, including WAC-173-303-084.**

19. Page 4-1, line 24 - Comment - No mention of the chemical properties of zinc and it's compounds or of cesium and it's compounds is made.

Requirement - Include the appropriate chemical properties for these two constituents. Include whether they are expected to be present, what form and concentrations they may be in, and their decomposition products if any.

**RL/WHC Response: The following will be inserted into the text:**

**"Two cesium and zinc aerosol tests were conducted at the LSFF, in the Small Fire Room steel vessel. During these tests a total of about 2 pounds of cesium metal and about 0.25 pounds of zinc metal were used; about half of this material was consumed during the tests. Most of the test residues were collected and disposed of at that time. There have been two small cesium burns in the Exhaust Fan Room, but no zinc was involved in those tests. Compared with the other materials burned, the quantity of cesium released is very small, much less than 1%. Cesium is readily oxidized and any unreacted cesium is now an oxide and/or complexed with other materials, such as hydroxides and silicates, which would be co-deposited with the sodium carbonate matrix. In the unlikely event that any zinc was released, it would also be co-deposited within the sodium carbonate matrix."**

Ecology reply: The discussion of the fate of cesium and zinc is appropriate and must be included in the revised closure plan. In regard to designation of the resultant waste mixture see the above comment/requirement and WAC 173-303-084.

**RL/WHC Response #2: The text will be included. All regulations will be adhered to, including WAC-173-303-084.**

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20. Page 4-1, line 41 - Comment - Although the WAC 173-303 designations for lead are listed, there is no discussion of the types of products formed by the reaction of lithium-lead alloy.

Requirement - The products of reaction and decomposition products for the lithium-lead alloy tests should be included in this section, and each constituents chemical properties discussed.

**RL/WHC Response: The following will be inserted into the Closure Plan:**

**"The lithium-lead alloy test was conducted only once, in the Small Fire Room inside the steel burn vessel. Virtually all of the reaction products would have remained in the burn vessel; these have been cleaned up and removed."**

**Any lead present elsewhere in the facility is from some other source not related to alkali metal testing or burn activities.**

Ecology reply: The inside of the burn vessel used for this test may still contain quantities of lithium-lead deposits. Any decontamination washes used on the interior of the burn vessel should be sampled for waste designation status.

**RL/WHC Response #2: All wash water will be analyzed for waste designation status.**

21. Page 5-1 - Comment - If Ecology determines that it is necessary for documentation to be presented showing that the LSFF has not adversely impacted the soils or groundwater in the area around it, then that information must be presented as outlined in WAC 173-303-645, in order for the facility to be clean closed. (Section 6.3.1, page 6-5, TPA, August, 1990)

Requirement - Please write a paragraph into the groundwater chapter that reflects the above.

**RL/WHC Response: In accordance with the Tri-Party Agreement (Ecology et al. 1990), groundwater in the 105-DR area will be included in the 100-HR-3 operable unit and investigated under the RCRA RFI/CMS process.**

Ecology reply: Since Ecology does not believe that there has been any impact to the groundwater from this facility, there will be no need to modify chapter 5.0 of the closure plan. However, Ecology points out that the requirements of the above section of the TPA (Section 6.3.1, page 6-5 of the Action Plan) will be applied when necessary as determined by the lead regulatory agency, regardless of inclusion of this statement in the closure plans.

**RL/WHC Response #2: RL will continue to comply with the TPA, as amended.**

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22. Page 6-1, line 46 - Comment - This section does not address the removal of possible lead contamination in either the soil or the concrete walls. This possibility must be addressed along with the removal action for sodium and lithium carbonates.

Requirement - If it is determined that there is lead contamination in the soil and/or concrete, it must be tested using the TCLP method for metals. Soil and concrete will be cleaned to natural background. Include in this section a description of the actions to be taken (including TCLP and background determinations) if lead contamination is found in soils or concrete.

**RL/WHC Response: Lead concentrations in soils will initially be compared to levels determined by the Site-wide background study, using the same analytical techniques as those used in that study. Background on concrete will be determined on a concrete core taken from outside the exhaust fan room, using the TCLP method.**

Ecology reply: It is more appropriate to take a core from the northeast corner of the supply fan room, as far from potential contamination as possible. This core may be used to determine background for concrete, however, the use of TCLP as the sole test method for analyzing concrete is not acceptable. Once a core has been taken the middle inch will be sliced out, partially crushed, and the aggregate removed. Removal of the aggregate will prevent the concrete from having significant deviations in chemical characteristics due to the aggregate mix. The remaining material can then be prepared following the appropriate SW-846 method, or other approved method.

**RL/WHC Response #2: It is proposed that no background be established for concrete, owing to variations in the composition of sand and cement between different pours. The analysis of concrete cores obtained from walls, floors, and ceilings will be performed in a manner appropriate to the goal, determining if the concrete has been contaminated by activities performed in the LSFF. To this end, it is suggested that the TCLP be utilized. This is an established procedure which is designed to measure the concentration of contaminants mobilized into the environment. The preparation and analytical technique used in TCLP would undoubtedly detect the compounds of concern in the LSFF (e.g., carbonate, oxide, and hydroxide compounds of Na, Pb, Cs, and Zn), if they are present.**

23. Page 6-2, line 16 - Comment - This section states that "baseline" samples and known contaminated samples will be compared to determine whether contamination is above general baseline levels. The use of the word "baseline" does not have any meaning.

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Requirement - Any comparisons of facility samples must be compared to site-wide background levels as determined by the Site-wide Background Study currently taking place.

**RL/WHC Response: When referring to concrete, the term "baseline", as defined on page 6-1, line 50, will be changed to "local background". As discussed above, soil will be compared to Site-wide background values.**

Ecology reply: The use of local background values is proposed for concrete. See the Ecology requirement for comment number 22.

**RL/WHC Response #2: Please see response number 22.**

24. Page 6-2, line 24 - Comment - This line states that dangerous waste left on the concrete (residuals) will not be a health hazard to humans or a threat to the environment and that it will be left for the reactor decommissioning. No dangerous waste can be left in place following a clean closure per WAC 173-303-610. If waste is left in place, then postclosure requirements must be met. The Nuclear and Mixed Waste Management (N&MWM) program's clean-up policy may affect the type of closure pursued at this facility.

Requirement - Closure of the LSFF must meet the clean closure requirements of WAC 173-303-610, or postclosure requirements of WAC 173-303-610 will be imposed on the facility.

**RL/WHC Response: A partial clean closure of the LSFF will be performed, as discussed in the accompanying cover letter. The facility will be cleaned to levels protective of human health and the environment.**

Ecology reply: The above statement is correct. The specific closure performance standards to be used at the LSFF for concrete are WAC 173-303-610(2)(b) and the SCR policy. If the concrete designates as dangerous waste it must be disposed of in accordance with WAC 173-303. Ecology does not expect the concrete at the LSFF to be a dangerous waste or a decontamination problem due to the nature of the wastes treated at the LSFF.

**RL/WHC Response #2: All appropriate regulations will be followed during all phases of cleanup, partial closure, and postclosure monitoring of the LSFF.**

25. Page 6-2, line 30 - Comment - This section states that soil will be cleaned to "action levels". The term "action level" has no meaning and should not be used in this closure plan. Soil must be cleaned either to background levels or there will be post-closure requirements imposed on the LSFF.

Requirements - The level of clean-up required will be influenced by the N&MWM program's soil clean-up policy. This will be provided as soon as

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completed. Background will be determined by the Sitewide Background Study currently in progress.

**RL/WHC Response: The term action level is defined beginning on page 6-1, line 46. Site-wide background will be the first action level for soils; if levels are above this, soil composition will be compared to values derived from health-based standards.**

> Ecology reply: The "health-based" standards that may be applied at this unit for soils are defined in the SCR policy. This policy should be referenced regarding health-based standards that may be used for soils which do not meet clean-closure standards.
>
> **RL/WHC Response #2: Employing an option from the SCR policy would not be appropriate, because it is the opinion of RL and WHC that this policy is technically flawed (see letter from R. D. Izatt to N. Pierce, dated April 3, 1992). Health-based action levels will be determined from guidance contained in WAC-173-340.**

27. Page 6-2, line 43 - Comment - Any further assessment of "action levels" will be done according the N&MWM program's clean-up policy.

Requirement - This policy will be released as soon as completed.

**RL/WHC Response: Please see responses #3 and #25.**

> Ecology reply: Closure "action levels" for the LSFF are discussed. See comment number 25.
>
> **RL/WHC Response #2: Please see response number 25.**

35. Page 7-2, line (all) - Comment - The various test methods cited in this section are usually referencing EPA's SW-846 test methods. However, WAC 173-303-110 is the appropriate listing of test methods to be used under the State Dangerous Waste regulations. In some cases SW-846 is an appropriate method, but some of the tests must follow approved ASTM Standards.

Requirement - Following the requirements of WAC 173-303-110, correct the test methods for the various samples throughout this section. These are the approved test methods and must be used.

**RL/WHC Response: The SW-846 test methods are the preferred and accepted analytical methods for clean-up activities. The WAC 173-303-110 regulations are specifically for waste designation.**

> Ecology reply: WAC 173-303-110(2) methods must be used for verification sampling to make the results of the SW-846 analyses valid (i.e., to provide "representative samples"). Make any changes necessary to this section, based on the above clarification.

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**RL/WHC Response #2: The appropriate changes will be made.**

38. Page 7-2, line 34 - Comment - Area 1 must be sampled in many more locations than are outlined in this section and Appendix C including, but not limited to; office area, walls, floor and ceiling of the fire rooms and sodium handling room as well as any other area 1 location that may have received dangerous waste during operating years or since.

Requirement - Include in this section and in Appendix C a detailed description of the sampling plan for area 1 that will include the areas outlined above and any other areas that may have been impacted by past practices of the LSFF or where dangerous waste may have migrated since cessation of operations.

**RL/WHC Response: The rooms in which alkali metals were reacted are separated from the office and storage area by walls and doors. Also, the ventilation system is constructed so that airflow is toward the wall opposite the doors, away from the storage and office area.**

**The exhaust fan room was the only room where wastes were reacted outside of a containment vessel. Any dangerous waste that could have been deposited on the floor, ceiling, or walls of the LSFF would be restricted to this room and the exhaust tunnels. The revised closure plan will call for decontamination of the exhaust fan room, so no characterization sampling of this area will be necessary. The sampling plan in Appendix C will be rewritten and redrafted for increased clarity, and the plan to sample the exhaust tunnels will be removed.**

Ecology reply: The verification sampling at the LSFF must be more extensive than is currently outlined in the closure plan. With the change in closure strategy at this unit, the verification sampling will need to be modified. The minimum areas that must be sampled for verification of meeting closure standards are as follows: Two samples in the office area, one authoritative sample on the floor outside the exhaust fan room, one random sample of the floor; random samples of the floor, walls, and ceiling of the exhaust fan room; two samples in each of the other fire rooms, one directly below the tank position, and one directly above; one below the tank in the sodium supply room. The gravel scrubber, soil outside the LSFF, and the crib must have their verification sampling points submitted with the revised closure plan.

**RL/WHC Response #2: The sampling strategy outlined above is accepted, with the exception of the sample from the crib. Any remediation of the crib will occur with reactor D&D. A total of 13 wipe samples from the interior of the LSFF will be collected and analyzed for cleanup verification. One soil sample from outside the LSFF and one sample of gravel from the scrubber will also be taken and analyzed.**

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39. Page 7-2, line 49 - Comment - This line calls for "baseline" sampling to be done on the exterior wall of the exhaust fan room. This term has no meaning. The appropriate term is background.

Requirement - More information on the activities around the external areas of the LSFF is needed to determine whether this is an appropriate place to do the background sampling. Sampling must be done on concrete that is unimpacted by past practices of dangerous waste activities.

**RL/WHC Response: Please see response #23 for discussion of baseline. The concrete cores to be sampled for background will be taken outside the door of the exhaust fan room, not outside the LSFF building (see Section 7.3.5).**

**Ecology reply**: The location for background coring of concrete is proposed to be outside the exhaust fan room door. See comment number 22.

**RL/WHC Response #2: Please see response number 22.**

41. Page 7-3, line 13 - Comment - Dual-level sampling will not succeed if: there is fugitive lead-contaminated dust on both the surface deposits and the painted walls, or if there is lead-contaminated dust on either the deposits or the wall. Assurances must be made that any possibility of contamination with lead dust is eliminated.

Requirement - State in this section how lead will be sampled for, taking into account the above stated problems.

**RL/WHC Response: The revised closure plan will propose deferring tunnel clean-up to the reactor decommissioning process (see response #17). This section will be eliminated.**

**Ecology reply**: The removal of tunnel activities from the closure plan is mentioned. See the response to comment number 17.

**RL/WHC Response #2: Please see response number 17.**

42. Page 7-3, line 20 - Comment - As stated previously it is not appropriate to leave dangerous waste and/or constituents associated with the LSFF for later decontamination.

Requirement - See comment number 24.

**RL/WHC Response: This section will be rewritten to state that area 2 will be deferred to reactor decommissioning; area 1 will be cleaned under this closure plan.**

**Ecology reply**: A similar comment to number 41 is made here. See the response to comment number 17.

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**RL/WHC Response #2: Please see response number 17.**

43. Page 7-3, line 29 - Comment - Surfaces must be cleaned to background levels, not "below dangerous waste levels".

Requirement - Rewrite this section to comply with WAC 173-303-610(2)(b)(i).

**RL/WHC Response: The referenced WAC 173-303-610(2)(b)(i) deals only with wastes designated under WAC 173-303-81, -82, or -90. Most if not all of the dangerous wastes associated with the gravel scrubber are classified under WAC 173-303-84 and are subject to the requirements of WAC 173-303-610(2)(b)(ii).**

**Ecology reply**: If the gravel in the scrubber designates for corrosivity pursuant to WAC 173-303-090, then the closure standards of WAC 173-303-610(2)(b)(i) apply. If the gravel does not designate according to WAC 173-303-090, then the standards of WAC 173-303- 610(2)(b)(ii) apply.

**RL/WHC Response #2: Agreed.**

44. Page 7-3, line 31 - Comment - What is considered appropriate disposal of the gravel from the gravel scrubber.

Requirement - Considering the possible designation status of the gravel, list the disposal alternatives for the gravel scrubber.

**RL/WHC Response: If the gravel from the gravel scrubber is classified as dangerous waste, it will be disposed of in a permitted disposal facility or stored in a permitted storage facility if mixed waste.**

**Ecology reply**: Please state in this section whether the disposal and/or storage of this material will occur on-site or off, and specify any off-site TSD's involved, pursuant to WAC 173-303-610(3)(a)(IV).

**RL/WHC Response #2: If the gravel is found to be uncontaminated, as expected, it will be disposed of in the Hanford Solid Waste Landfill. If the gravel designates as a dangerous waste it will be shipped off-site to a RCRA-licensed dangerous waste landfill. The current process is to package the waste and send it to the 616 building. From there is shipped to a disposal unit in Utah operated by United States Pollution Control, Incorporated.**

45. Page 7-3, line 42 - Sampling of the filters is required whether or not there are visible deposits on them.

Requirement - The filters must be sampled for designation status. Rewrite this section to state the same.

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**RL/WHC Response: Because the HEPA filter building is an integral part of the exhaust tunnels, this building will be deferred to reactor decommissioning activities.**

> **Ecology reply**: RL/WHC propose deferral of the HEPA filters closure to the reactor D&D activities. See Ecology's response to comment numbers 16 and 17.
>
> **RL/WHC Response #2: Please see response number 17.**

46. Page 7-3, line 44 - Comment - The 117-DR building must be cleaned to the closure performance standards of WAC 173-303-610 before it can be left for the decommissioning activities. Additionally, it may be that the concrete walls of the 117-DR building have been painted with lead based paints and the same sampling problems will arise as elsewhere concerning lead. See paragraph 2 of comment #1.

Requirement - Closure will follow WAC 173-303-610 and N&MWMP clean-up policy.

**RL/WHC Response: See response #45.**

> **Ecology reply**: The deferral of the 117-DR building is proposed. See the Ecology response to comment numbers 16 and 17.
>
> **RL/WHC Response #2: Please see response number 17.**

47. Page 7-3, line 47 - Comment - The area at the base of the stack must be sampled for the presence of sodium, lithium and lead, at least, to determine if the dangerous waste constituents have been deposited in the stack.

Requirement - State how the stack will be sampled for dangerous wastes associated with the LSFF.

**RL/WHC Response: Because the stack is an integral part of the exhaust tunnels, it will be deferred to reactor decommissioning activities.**

> **Ecology reply**: Deferral of the stack is proposed. See the Ecology response to comment numbers 16 and 17.
>
> **RL/WHC Response #2: Please see response number 17.**

48. Page 7-4, line 7 - Comment - Deferral of sampling and treatment of the 116-DR-8 crib area to the 100-HR-3 RFI/CMS is not appropriate for the soil, and may not be for the ground water. If there have been releases to the crib from this facility, then there may need to be groundwater monitoring activities in accordance with WAC 173-303-645 and the Tri-Party Agreement section 6.3.1 of the Action Plan.

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Requirement - This section must include the description of the sampling to be done on the soil in the 116-DR-8 crib area, and a more detailed discussion of the types of releases to the crib in order to determine if dangerous wastes have been deposited into the soil and groundwater, and if groundwater monitoring requirements are applicable. Are there any RCRA groundwater monitoring wells around the LSFF and the 116-DR-8 crib that may be used to characterize the groundwater?

**RL/WHC Response: Any contribution of dangerous wastes to the crib via the neutral solution discharged from the LSFF would be negligible. The crib is part of the 100-DR-2 operable unit and the 100-HR-3 groundwater operable unit. It will be remediated separately from the LSFF.**

Ecology reply: Deferral of the crib is dependent upon RL/WHC providing records of the waste disposed to the crib from the LSFF, or otherwise establishing that the waste stream from the LSFF was not a dangerous waste. If the solution discharged to the crib is not a dangerous waste than deferral to the CERCLA process is appropriate. It should be noted that the 100-HR-3 operable unit RFI/CMS does not consider any waste contribution from the LSFF in it's decision-making process. Also, the 100-HR-3 Operable Unit RFI/CMS shows that the 116-DR-8 crib is located on the west side of the 117-DR filter building, approximately where the fan pit is shown in Figure 2-3. The revised version of this closure plan must show the correct location of the crib, and if the actual location of the crib is not known, then that must be stated.

**RL/WHC Response #2: According to the log book for the LSFF, fluids were neutralized before being discharged to the crib and thus were not dangerous wastes. A copy of pertinent portions of the log book will be made available to Ecology upon request. Also, the 116-DR-8 Crib is, to the best of our knowledge, correctly located. This is based on the latest information obtained from the operable unit coordinator, which is in turn based on historic records and interviews with retired personnel who actually worked at the DR area.**

50. Page 7-4, line 44 - Comment - This section says that the small pieces of equipment will not be sampled. However, clean closure cannot be approved without some form of verification.

Requirement - There must be some method for verifying decontamination of the various small parts associated with the LSFF apparatus. Clean closure cannot be approved without it. Include the plan for verification sampling in this section.

**RL/WHC Response: The small parts will be visually inspected for the presence of carbonate coatings, and cleaned with water or a weak acid wash if such a coating is found. Because the carbonates are dangerous only in large quantities, removal of surface deposits will ensure safe decontamination of the surfaces.**

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Ecology reply: It is more appropriate to simply wash all of the small pieces of equipment, regardless of visible deposits. This will help ensure that all dangerous waste residues are removed, as well as save time otherwise spent inspecting each part. The washwater from this process will then need to be analyzed to determine it's designation status, and if found to be a dangerous waste, handled accordingly.

**RL/WHC Response #2: Agreed.**

51. Page 7-5, line 18 - Comment - The QA/QC used in this closure plan must adhere to and mesh with the QA/QC procedures being developed for the Sitewide Hanford Facility RCRA Permit.

Requirement - This section must state that all procedures are in accord with the Sitewide QA/QC requirements.

**RL/WHC Response: A reference to the Sitewide Hanford Facility RCRA Permit will be included, if available.**

Ecology reply: Ecology is currently requiring a Level I Data Validation Package in accordance with EPA's Contract Laboratory Program for data submitted in support of a clean closure. This data validation package must be submitted for all characterization and validation samples at the LSFF.

**RL/WHC Response #2: The level of validation required for RCRA activities is currently at issue, and is being addressed through the TPA resolution process. Resolution of this comment will be dependant on the final disposition of this issue.**

57. Page 7-9, line 18 - Comment - This paragraph discusses the alternatives if there are problems with the sampling or if there is "significant differences in mean concentrations" between facility and baseline samples.

Requirement - If there are significant differences between facility and background samples then clean closure will have to be abandoned or further remediation must be done on the facility. Insufficient data should not be a problem if this sampling plan is done properly. Again, the N&MWMP soil clean-up policy will determine what level the facility must be cleaned to in conjunction with WAC 173-303-610.

**RL/WHC Response: The portion of the cited sentence regarding insufficient data will be struck, as this is not anticipated to be a problem. Site-wide background will be the first action level for soils; if levels are above this, soil composition will be compared to values derived from health-based standards.**

Ecology reply: Health-based standards for soils are mentioned. See the requirement in comment number 25.

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**RL/WHC Response #2: Please see response number 25.**

58. Page 7-10, line 30 - Comment - Standard sampling techniques are mentioned and"(EPA, 1987)" is also referenced.

Requirement - Please state the specific sampling guidelines. Also refer to comment number 53.

**RL/WHC Response: Specifics of sampling and analysis will be addressed in the Sampling Plan, which will be submitted after the closure plan is approved.**

**Ecology reply**: The sampling plan must be included in the closure plan prior to approval. WAC 173-303-610(3)(a)(v) states that the plan must include; "A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard." The closure plan may incorporate a sampling plan immediately prior to approval, thus providing the time frame necessary to make the sampling plan current. See also comment number 65.

**RL/WHC Response #2: Sampling guidelines are detailed in the Environmental Investigations and Site Characterization Manual (WHC 1988), which will be provided to Ecology upon request. The detailed Sampling Plan, which is an internal document that specifies conduct and explicit activities to be followed during sampling, is a stand-alone document which is written and reviewed shortly before sampling begins. It is inappropriate to include this document in the closure plan. The details of sampling presented in Chapter 7 (realizing that this chapter will be heavily modified in Revision 1) and Appendix C should be sufficient for evaluating the technical merit of the sampling scheme.**

61. Page 7-11, line 21 - Comment - The bullet on this line proposes listing only the "constituents or parameters of concern", and assumingly eliminating those not of concern.

Requirement - The list of results should include all contaminants sampled, not just those "of concern". It is presumptuous to leave out painstakingly gathered data from the analysis or reporting. Report all data for which the analysis provides results including negative results.

**RL/WHC Response: The second bullet will be revised to read:**

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**"A list of all analytical data obtained, including detection limits for each element reported."**

Ecology reply: This is appropriate. This data must meet the quality assurance/quality control (QA/QC) requirements of the Hanford Facility Permit. The requirements of this section of the draft Hanford Permit will be made available upon request.

**RL/WHC Response #2: The level of validation required for RCRA activities is currently at issue, and is being addressed through the TPA resolution process. Resolution of this comment will be dependant on the final disposition of this issue.**

62. Page 7-11, line 40 - Comment - The numbers of QA/QC samples are proposed to be left out of Table 7-2.

Requirement - These QA/QC samples should be included for reference sake in Table 7-2.

**RL/WHC Response: Table 7-2 will be extensively revised to eliminate all of the characterization and validation samples from areas 2 and 4. The note at the bottom of Table 7-2 should be a sufficient indication of QA sampling procedures.**

Ecology reply: The proposal in this response is acceptable, pending inclusion in the revised closure plan. See the previous comment regarding compliance with the Hanford Permit QA/QC requirements.

**RL/WHC Response #2: Please see response number 61 regarding QA/QC requirements.**

63. Page 7-12, line 27 - Comment - This line says that the sampling plan will be modified as needed and recorded in the logbook, along with the circumstances requiring the modification.

Requirement - Modifications to the sampling plan must be recorded in the logbook and made available for review by Ecology upon request. They should also be provided at the UMM for transmittal to Ecology.

**RL/WHC Response: The following sentence will be added to the text:**

**"Copies of the field logbook will be made available to Ecology upon request."**

Ecology reply: This will be acceptable pending inclusion in the revised closure plan. However, it must be noted that any changes should be conservative in nature, and that inappropriate changes that are not approved by Ecology in advance may be grounds for disqualifying the results of the sampling.

**RL/WHC Response #2: So noted.**

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65. Page 7-12, line 38 - Comment - The Health and Safety Plan (HASP) was not included with the LSFF Closure Plan.

Requirement - The HASP must be included with the Closure plan for review and approval by Ecology. See the cover letter for other items required under the final facility standards.

**RL/WHC Response: Health and Safety Plans are not included with closure plans. Please see item number 5 under response #1.**

Ecology reply: It may be appropriate to defer submittal of the HASP until just prior to sampling at the site. This is contingent upon the submittal of an example Hazardous Waste Operations Permit to Ecology. The details of the timing of HASP submittal and the sampling plan/closure plan approval will be discussed at future Unit Manager meetings. There must also be a reference in this section to the interim status contingency plan and training plan for this unit, as well as to the facility-wide contingency and training plans.

**RL/WHC Response #2: An example Hazardous Waste Operations Permit will be submitted to Ecology shortly. This section will also reference contingency plans and training plans as requested, if available.**

68. Page 7-13, line 39 - Comment - Possible disposal options for the filters is deferred until characterization sampling has occurred. It is very likely that the filters will designate as dangerous waste since they were the primary means of removing the sodium, lithium and lead contaminants from the waste stream. The disposal options for the HEPA filters must be included in this closure plan.

Requirement - Include the possible disposal options for the HEPA filters in the LSFF closure plan.

**RL/WHC Response: It is proposed that the 117-DR building be remediated separately from this closure plan. Please see comment #45.**

Ecology reply: RL/WHC have proposed deferral of the 117-DR building until the D&D activities at 105-DR reactor. See Ecology's requirements under comment numbers 16 and 17.

**RL/WHC Response #2: Please see response number 17.**

69. Page 7-13, line 48 - Comment - If soil alkalinity is above background levels or there is above background levels of lead, then the soil must be remediated with the rest of the LSFF to accomplish clean closure.

Requirement - The N&MWMP soil clean-up policy will affect the clean-up of soil associated with the rest of the LSFF and 116-DR-8 crib. See comment number 2.

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**RL/WHC Response: Please see response #48.**

Ecology reply: Soil remediation is discussed in regard to the 116-DR-8 crib. Please see the response to comment number 48.

**RL/WHC Response #2: Please see response #48.**

72. Page 7-15, line 29 - Comment - Figure 2 will need to be modified.

Requirement - See comment number 73.

**RL/WHC Response: Please see response #73.**

Ecology reply: See comment/requirement number 73.

**RL/WHC Response #2: Please see response #73.**

73. Page 7-16 - Comment - The figure on this page does not allow time for Ecology to review and approve different aspects reflected in the schedule, or those times are figured in but not shown as separate incidents. For example, no time is allowed for approval by Ecology of the HASP.

Requirement - Modify this table to show the areas that will require Ecology approval and propose times for those actions to take place.

**RL/WHC Response: Ecology approval of the HASP is not necessary. Please see response #65.**

Ecology reply: Closure activities must take place in a manner which is protective of human health and the environment. This includes the personnel performing the closure activities. While Ecology approval is not specifically required per se, the HASP must be included in the closure plan to ensure that activities are carried out in a safe manner. See the requirement under number 65.

**RL/WHC Response #2: The HASP, a document used to assure the safety of our workers, will be provided to Ecology before sampling begins. Please see response #65.**

75. Page 8-2, line 5 - Comment - Deferral of closure of the LSFF will require some level of postclosure care per WAC 173-303-610(7) through (11). The upcoming N&MWMP soil clean-up policy will also determine the level of post-closure care needed at the LSFF until final closure with other remediation programs.

Requirement - The N&MWMP soil clean-up policy will be issued as soon as approved and this will determine possible postclosure activities at the LSFF.

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**RL/WHC Response: The clean-up levels proposed by the Nuclear and Mixed Waste Management Program clean-up policy will be addressed when that policy is released. If a portion of the LSFF proposed to be cleaned in this closure plan must be deferred to reactor decommissioning, any remaining contamination will be isolated and/or stabilized to prevent or minimize its movement.**

Ecology reply: Postclosure care and stabilization of wastes is discussed. See the requirements under comment/requirement number 17.

**RL/WHC Response #2: Please see response #17.**

81. F-4, line, 19 - Comment - This line states that analytical procedures for alternate labs will be approved by Westinghouse Hanford. Ecology must also approve these procedures as part of the closure plan prior to their use.

Requirement - Include Ecology approval as part of the approval process for the alternate labs as well as the primary labs.

**RL/WHC Response: It is unclear why this approval is required. Please provide regulatory references regarding this point.**

Ecology reply: The term procedures as used in this comment by Ecology is a reference to the procedures as outlined in WAC 173-303-110. These are the approved analytical and sampling procedures for use in analyzing solid and dangerous wastes, and any deviations from these procedures must be approved by Ecology prior to their use.

**RL/WHC Response #2: All sampling and analysis procedures ill comply with the appropriate regulations.**

82. Page F-4, line 31 - Comment - "Westinghouse Hanford approved QA plans and/or procedures" are mentioned.

Requirement - All plans and procedures associated with the LSFF closure plan must be approved by Ecology as well. Included Ecology approval as requirement for use of these plans and procedures.

**RL/WHC Response: Westinghouse Hanford has well-established procedures regarding these matters, which do not require the approval of Ecology. These procedures are listed in Appendix F, Section 4.1. These procedures are available for review by Ecology.**

Ecology reply: Any procedural document used by WHC to fulfill a specific requirement of Chapter 173-303 WAC must be either entered directly into the text of the closure plan or referenced and provided in full for review by Ecology, in order to determine whether the procedure in question meets the demands of Chapter 173-303 WAC.

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**RL/WHC Response #2: The following text will be included in the closure plan:**

**"All work performed by other support contractors will follow the guidelines contained in this closure plan and all applicable regulations."**

85. Page F-5, line 7 - Comment - The procedures used during the remediation are the practical details addressing closure of the LSFF. These must be reviewed and approved by Ecology prior to their use in this closure plan.

Requirement - Submit the procedures referenced in section 4.1 for review. Procedures previously submitted need not be resubmitted.

**RL/WHC Response: These procedures do not require Ecology approval, but are available for review and comment upon request.**

Ecology reply: As stated above in comment/requirement number 82, any document used to fulfill a regulatory requirement must be reviewed and approved by Ecology prior to allowing the documents use during closure plan activities. If WHC does not wish to have their procedures reviewed, then it will be necessary to write directly into the text of the closure plan how the specific activities regarding closure will take place. WAC 173-303-610(3)(a)(v) states; "A **detailed** description of the methods to be used during partial closures and final closure..." (emphasis added). Referencing documents that are not subject to oversight by Ecology is not sufficient to ensure compliance with Chapter 173-303 WAC.

**RL/WHC Response #2: The following text will be included in the closure plan:**

**"All laboratory work will follow the requirements of WAC-173-303-110."**

87. Page F-8, line 27 - Comment - Changes to the procedures should be reviewed by Ecology prior to implementation. The scope of the change and it's anticipated effect will be considered. This will help to prevent undue duplication of actions as has been the case in other RCRA activities that were carried out without consulting with Ecology, many of which had to be repeated.

Requirement - Any changes to the procedures must be approved by Ecology prior to implementation.

**RL/WHC Response: Please see response #85.**

Ecology reply: Procedural approval is discussed. See the requirements under comment numbers 82 and 85.

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**RL/WHC Response #2: The following text will be included in the closure plan:**

**"Any necessary deviations will comply with all applicable regulations."**

88. Page F-9 - Comment - This table shows the E.I.I.'s for the LSFF. These procedures must be reviewed and approved by Ecology prior to their use in the LSFF closure.

Requirement - Submit the E.I.I.'s listed in table F-2 for review by Ecology. Any procedures previously submitted need not be resubmitted.

**RL/WHC Response: Please see response #85.**

Ecology reply: Procedural approval is discussed. See the requirements under comment numbers 82 and 85.

**RL/WHC Response #2: The following text will be included in Section 4.2 of the closure plan:**

**"All activities performed under these EII's will comply with all applicable regulations."**

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Subject: REVIEW OF THE SECOND CYCLE OF NOTICE OF DEFICIENCY COMMENTS AND RESPONSES FOR THE 105-DR LARGE SODIUM FIRE FACILITY CLOSURE PLAN, REVISION 0

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